

Toward a RED List for Idaho's Macrofungi

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Two recent assessments of the diversity of organisms on federal land stimulated creation of preliminary lists of macrofungi of special concern. One assessment area encompasses the known range of the northern spotted owl in western Washington, western Oregon and northwestern California under the auspices of President Clinton's Forest Plan. The other assessment area encompasses all of Idaho, eastern Oregon, eastern Washington, and pieces of Utah, Montana, Nevada, and Wyoming under the auspices of the the Interior Columbia River Basin Ecosystem Management Project (ICBEMP). I have taken the information generated from these assessments and evaluated the macrofungal species of special concern to create a preliminary RED list of macrofungi from Idaho. Procedures for this evaluation are those proposed and followed for the Oregon RED list (Castellano 1997) .

What is a RED list? "R" represents rarity for those species that are localized within restricted geographical areas or habitats or are thinly scattered over a more extensive range. "E" represents endangerment, which are species in danger of extinction throughout all or a significant portion of its range (Threatened status is regarded the same). "D" represents distribution that considers the overall species range.

Rare species are defined as those species that have 10 or fewer vouchered specimens or occurrences. Occurrences is defined as one or more collections within a square kilometer extant site; this reflects neither abundance within site or dispersal across the landscape and is independent of topography, habitat and history.

The creation of a RED list requires exchange of information between professionals and amateurs to fully evaluate the occurrence of macrofungi. The first RED list for any region in North America has been started for Oregon, and another is in process for Washington.

Until recently there had been no fungi listed on the federal list of Threatened and Endangered organisms, which is almost exclusively comprised of animal and plant species. Only one fungal species has been proposed, *Bridgeioporous nobilissimus* (formerly *Oxyporus nobilissimus*). Eventually, after further scrutiny, the macrofungi species on the Idaho RED list will draw enough additional attention from collectors that a firm understanding of their occurrence on the landscape will allow proposal of some Idaho species for federal listing. The preferred option to maintain species viability is to develop conservation strategies and recovery plans for these macrofungi, rather than a federal listing.

Macrofungi have a significant role in the physiological function of ecosystems as has already been discussed in another chapter by T. O'Dell. Sporocarp occurrence does not reveal the extent of the individual. The thallus (body of the fungus) ramifies through the substrate, be it soil, wood, or leaves. The sporocarp is just the fruit of the organism, much like apples from a tree. Some macrofungi produce many "fruits" per individual, while others produce few "fruits" per individual.

Macrofungi occupy a wide variety of habitats (e.g., forests, meadows, deserts, riparian areas) and substrates (e.g., leaves, rotten wood, live wood, various soil types). Many macrofungi only occur in a specific habitat or where a specific host occurs, and as such, have a limited distribution. For example, *Sowerbyella rhenea*, an Ascomycete, requires moist sites and is a regional endemic. In Idaho, it is found at Upper Priest River. *Morchella semilibera* requires burned areas to form sporocarps.

The survey and inventory of macrofungi present unique and significant challenges because of their cryptic nature, ephemeral occurrence, seasonality, clustering across the landscape, the paltry information on population biology, difficulties with identification, and destructive sampling methodologies. Timing of the survey work is critical. It must be done when the "fruits" have been produced. The season of fruiting for many species does not overlap, so repeated visits to the same location are needed throughout the fruiting season. Some species are hard to identify due to poor understanding of the taxonomy of certain species, genera, and families of fungi. Destructive sampling is sometimes needed for proper identification, particularly for the sequestrate fungi that often times form sporocarps within the substrate.

The success of the assessment for the President's Forest Plan encouraged us to attempt to assess the macrofungi for the ICBEMP. The available information for macrofungal species within the ICBEMP is

less comprehensive because collecting in remote and wide-ranging habitats has been extremely limited. This limited information at times has made it difficult to determine species rarity. I have relied largely on the expertise of mycologists who have worked in this area in creating the preliminary list presented below.

The RED list for Idaho macrofungi tentatively includes 29 genera and almost 200 species. Almost half of the species are Basidiomycetes (Table 1). Note that the list is heavy toward certain genera. This is directly related to the sources of available information used to compile the list. *Galerina*, *Hebeloma*, *Macowanites*, *Martellia*, *Pholiota*, *Psathyrella*, and *Rhizopogon* were studied intensively in this area by Dr. A.H. Smith and thus a great deal of information is known about these genera. Many other genera not studied in depth certainly occur in this area, and are without a doubt under-represented on the list at this time. Many of the species on the list are represented by one collection. Of almost 200 species, 95 are known from one collection in Idaho, many from Dr. Smith (historical collection).

Table 1

The Basidiomycete genera of special concern in Idaho include nine genera and 95 species. The number of species represented by each genus is noted in parentheses.

<i>Amanita</i> (2)	<i>Lactarius</i> (2)
<i>Crepidotus</i> (2)	<i>Leccinum</i> (1)
<i>Galerina</i> (13)	<i>Pholiota</i> (27)
<i>Hebeloma</i> (10)	<i>Psathyrella</i> (33)
<i>Hygrophorus</i> (5)	

The Ascomycetes are an often overlooked group of genera because many have small somewhat inconspicuous sporocarps. Ascomycetes are clearly under-represented in this assessment (Table 2). Many Ascomycete species that fruit on soil are thought to be mycorrhizal. Some are phenocoid, requiring burned areas to complete their life cycle. Many Idaho Ascomycetes are localized in their distribution. For example, *Plectania milleri*, a presumed mycorrhizal associate, is a regional endemic, known from one site in Clearwater County.

Table 2

The Ascomycete genera of special concern in Idaho include six genera and eight species. The number of species represented by each genus is noted in parentheses.

<i>Helvella</i> (2)	<i>Rhodocypha</i> (1)
<i>Morchella</i> (1)	<i>Sowerbyella</i> (2)
<i>Plectania</i> (1)	<i>Wynella</i> (1)

The puffballs are also under-represented in this assessment having just two species listed, *Calvatia owyheensis* and *Cyathus olla* f. *lanatus*. The extensive dry habitat within the ICBEMP is likely habitat for these species, but the rainfall pattern and the ephemeral nature of these sporocarps make them difficult to survey for unless resident to the area.

Due to the work of Dr. Smith, the sequestrate fungi are well represented on the list (Table 3). Additional effort is necessary to survey the assessment area and redocument the occurrence of these sequestrate fungi. Some of the sequestrate species will be removed from the list as more complete information is generated through additional work to recollect sequestrate fungi in Idaho.

Table 3

The sequestrate genera of special concern in Idaho include 12 genera and 94 species. The number of species represented by each genus is noted in parentheses.

<i>Chamonixia</i> (1)	<i>Destuntzia</i> (1)
<i>Gastroboletus</i> (1)	<i>Genabea</i> ^a (1)
<i>Gymnomycetes</i> (1)	<i>Leucophleps</i> (1)
<i>Macowanites</i> (12)	<i>Martellia</i> (7)
<i>Picoa</i> ^a (1)	<i>Rhizopogon</i> (66)
<i>Seducula</i> (1)	<i>Truncocolumella</i> (1)

a = Ascomycete genus of sequestrate fungi.

There are no representatives on the list of certain genera with many species in this region, but whose taxonomy is poorly understood. Some of these genera include *Cortinarius*, *Mycena*, *Ramaria*, and *Russula*. Of the almost 200 species, 116 are locally endemic, 44 are regional endemics, 33 are disjunct, and seven are on the periphery of the range.

I hope this preliminary list will create additional interest in these groups of organisms and generate comment and critique from interested individuals. The list is recommended as a starting point to begin discussion on what should and should not be included in the RED list for Idaho macrofungi. Comments and interest should be addressed to the author by mail, FAX (541-750-7382) or e-mail [castellanom@fsl.orst.edu].

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References

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Preliminary RED List of Idaho's Macrofungi

<u>Fungus Name</u>	<u>County</u>	<u>Associated Vegetation or Environmental Conditions</u>
<i>Amanita armillariformis</i>	Owyhee	<i>Salix</i> or <i>Artemisia</i>
<i>Amanita aurantiasquamosa</i>	Owyhee	<i>Salix</i> or <i>Artemisia</i>
<i>Calvatia owyheensis</i>	Owyhee	<i>Artemisia</i>
<i>Chamonixia brevicolumma</i>	Valley	<i>Picea engelmannii</i> or <i>Abies</i> spp.
<i>Crepidotus startosus</i>	Idaho (?)	fallen leaves and twigs
<i>Crepidotus sububer</i>	Bonner	wood of <i>Populus</i> spp.
<i>Cyathus olla f. lanatus</i>	Owyhee	on wood of <i>Artemisia</i> and <i>Sarcobatus</i>
<i>Destuntzia subborealis</i>	Bonner	conifers
<i>Galerina anelligera</i>	Valley	on duff under conifers
<i>Galerina borealis</i>	Idaho (?)	on moss
<i>Galerina castanescens</i>	Bonner	on conifer logs

<i>Galerina diabolissima</i>	Idaho	on moss
<i>Galerina fontinalis</i>	Valley	on wet soil
<i>Galerina nordmanniana</i>	Bonner	on moss
<i>Galerina payettensis</i>	Valley	on wet moss under conifers
<i>Galerina pseudostylifera</i>	Idaho	on rotting conifer logs in cold wet places
<i>Galerina pubescentipes</i>	Idaho	on conifer logs
<i>Galerina stylifera</i> var. <i>badia</i>	Idaho (?)	on conifer debris
<i>Galerina stylifera</i> var. <i>velosa</i>	Idaho (?)	on conifer debris
<i>Galerina triscopa</i> f. <i>longocystitis</i>	Valley	on moss covered conifer log
<i>Gastroboletus turbinatus</i> var. <i>flammeus</i>	Valley	<i>Abies</i> spp.
<i>Genabea cerebriformis</i>	Owyhee	<i>Pseudotsuga</i> with <i>Pinus monophylla</i>
<i>Gymnomycetes ferruginascens</i>	Valley	<i>Picea engelmannii</i> or <i>Abies lasiocarpa</i>
<i>Hebeloma alpinicola</i>	Idaho	<i>Pinus albicaulis</i>
<i>Hebeloma idahoense</i>	Valley	<i>Picea engelmannii</i>
<i>Hebeloma kelloggense</i>	Shoshone	unknown <i>Pinaceae</i>
<i>Hebeloma latisporum</i>	Bonner	<i>Tsuga</i> spp.
<i>Hebeloma mesophaeum</i> var. <i>subobscurum</i>	Idaho	unknown <i>Pinaceae</i>
<i>Hebeloma pseudofastibile</i> var.	Valley	unknown hosts on sandy soil
<i>Hebeloma salmonense</i>	French Creek Glade, Salmon River (?) Custer Co.	unknown hosts
<i>Hebeloma stanleyense</i>		<i>Pinus</i> spp.
<i>Hebeloma strophosum</i> var. <i>occidentale</i>	Valley	<i>Picea engelmannii</i>
<i>Hebeloma vinaceogriseum</i>	Idaho	unknown hosts
<i>Helvella corium</i>	Kootenai, Valley	<i>Pinus</i> or <i>Salix</i> spp.
<i>Helvella maculata</i>	Latah, Bonner, Idaho	unknown <i>Pinaceae</i>
<i>Hygrophorus burgdorferensis</i>	Idaho	on soil at edge of bog under <i>Pinus contorta</i>
<i>Hygrophorus ellenae</i>	Boise	on gravelly soil under <i>Pinus</i> and <i>Abies</i>
<i>Hygrophorus nordmanensis</i>	Bonner	on soil under <i>Tsuga</i>
<i>Hygrophorus velatus</i>	Idaho	on soil under conifers
<i>Hygrophorus vinicolor</i>	Custer	on moss
<i>Lactarius payettensis</i>	Idaho (?)	<i>Abies</i> , <i>Alnus</i> , or <i>Populus</i> spp.
<i>Lactarius rufus</i> var. <i>parvus</i>	Boundary	<i>Pinus</i> and <i>Abies</i> spp.
<i>Leccinum truebloodii</i>	Owyhee	<i>Populus</i> or <i>Pseudotsuga</i> spp., or both
<i>Leucophleps magnata</i>	Valley	<i>Pseudotsuga menziesii</i>
<i>Macowanites acris</i>	Custer	<i>Picea engelmannii</i>
<i>Macowanites citrinus</i>	Custer	<i>Pinus contorta</i>
<i>Macowanites fulvescens</i>	Valley	<i>Picea engelmannii</i> or <i>Abies</i> or both
<i>Macowanites fuscoviolaceus</i>	Valley	<i>Abies lasiocarpa</i>
<i>Macowanites lilacinus</i>	Valley	<i>Picea engelmannii</i> or <i>Abies lasiocarpa</i>
<i>Macowanites nauseosus</i>	Valley	<i>Picea engelmannii</i> or <i>Abies lasiocarpa</i>
<i>Macowanites olidus</i>	Valley	<i>Pinaceae</i>
<i>Macowanites pinicola</i>	Boise	<i>Pinus contorta</i>
<i>Macowanites pseudometricus</i>	Valley	<i>Picea engelmannii</i>
<i>Macowanites subolivaceus</i>	Custer	<i>Picea engelmannii</i>
<i>Macowanites subrosaceus</i>	Valley	<i>Picea engelmannii</i> or <i>Abies</i> or both
<i>Macowanites vinicolor</i>	Valley	<i>Pinaceae</i>
<i>Martellia ellipsospora</i>	Idaho	<i>Pseudotsuga menziesii</i>
<i>Martellia foetens</i>	Idaho	<i>Pinus contorta</i>

<i>Martellia fragrans</i>	Valley	<i>Abies</i> spp.
<i>Martellia fulvispora</i>	Valley	<i>Pinaceae</i>
<i>Martellia monticola</i>	Valley	<i>Abies lasiocarpa</i>
<i>Martellia subalpina</i>	Valley	<i>Abies lasiocarpa</i> , <i>Abies magnifica</i> var. <i>shastensis</i> and <i>Tsuga mertensiana</i>
<i>Martellia subochracea</i>	Valley	<i>Abies</i> and <i>Tsuga</i> spp.
<i>Morchella semilibera</i>	Latah, Canyon	on soil usually in riparian areas or wet soil
<i>Pholiota agglutinata</i>	Valley	on moss under <i>Picea</i>
<i>Pholiota atripes</i>	from Idaho (?)	on decayed conifer wood
<i>Pholiota aurantioflava</i>	Bonner	on conifer debris
<i>Pholiota avellaneifolia</i>	Valley	on soil under <i>Picea engelmannii</i>
<i>Pholiota baptistii</i>	Ada	on conifer debris
<i>Pholiota brunnea</i>	Valley	on conifer wood
<i>Pholiota flavida</i> var. <i>graveolens</i>	Bonner	on conifer wood
<i>Pholiota flavopallida</i>	Bonner	on conifer wood
<i>Pholiota fulvodisca</i>	Valley	on conifer duff
<i>Pholiota fulvozona</i>	Boundary	on partially burned wood
<i>Pholiota gruberi</i>	Nez Perce	on needle cover under <i>Larix occidentalis</i>
<i>Pholiota heimalis</i>	Boundary	on <i>Abies</i> log
<i>Pholiota humii</i>	Bonner, Idaho, Valley	on or around decayed conifer logs
<i>Pholiota luteola</i>	Valley	on conifer logs
<i>Pholiota macrocystis</i>	Valley	on conifer logs
<i>Pholiota milleri</i>	Bonner	on soil
<i>Pholiota nigripes</i>	Idaho, Valley	on conifer logs
<i>Pholiota obscura</i>	Adams, Idaho, Valley	on decayed wood
<i>Pholiota occidentalis</i> var. <i>luteifolia</i>	Boundary	on conifer debris
<i>Pholiota pallida</i>	Valley	on conifer logs
<i>Pholiota pulchella</i> var. <i>brevipes</i>	Bonner	on soil
<i>Pholiota scamboides</i>	Bonner	on buried wood
<i>Pholiota subechinata</i>	Bonner	on conifer log
<i>Pholiota sublubrica</i>	Boise, Custer, Idaho, Valley	on or near conifer logs
<i>Pholiota subsaponacea</i>	Boundary	on burned areas
<i>Pholiota subsaponacea</i>	Boundary	on burned areas
<i>Pholiota umbilicata</i>	Boundary	on debris from <i>Thuja plicata</i>
<i>Picoa carthusiana</i>	Valley	<i>Pseudotsuga menziesii</i> in North America
<i>Plectania milleri</i>	Clearwater	<i>Abies</i> spp. and <i>Tsuga</i> spp.
<i>Psathyrella abieticola</i>	Valley	<i>Picea</i> and <i>Abies</i>
<i>Psathyrella acuticystis</i>	Boundary	<i>Picea</i> and <i>Abies</i>
<i>Psathyrella annulata</i>	Bonner	on conifer duff under old-growth <i>Tsuga</i>
<i>Psathyrella argentata</i>	Bonner	on cow dung
<i>Psathyrella boulderensis</i>	Valley	on moist earth
<i>Psathyrella communis</i>	Bonner, Boundary	on decayed wood
<i>Psathyrella crassulistipes</i>	Bonner	on sand
<i>Psathyrella deserticola</i>	Owyhee	under sagebrush
<i>Psathyrella ellenae</i>	Valley	under <i>Picea engelmannii</i> and <i>Abies</i> spp.
<i>Psathyrella equina</i>	Valley	on horse dung
<i>Psathyrella fragrans</i>	Valley	on conifer debris
<i>Psathyrella fulva</i>	Bonner	on debris
<i>Psathyrella fuscospora</i>	Valley	on soil
<i>Psathyrella idahoensis</i>	Idaho	on disturbed soil

<i>Psathyrella lepidotoides</i>	Boundary	on <i>Populus</i> log
<i>Psathyrella mesocystis</i>	Valley	under <i>Picea engelmannii</i> and <i>Abies</i> spp.
<i>Psathyrella nezpercii</i>	Bonner, Idaho, Owyhee	on mud in pastures
<i>Psathyrella owyheensis</i>	Owyhee	in cow pastures
<i>Psathyrella populorum</i>	Owyhee	under <i>Populus</i>
<i>Psathyrella praternis</i>	Bonner	on debris under <i>Populus</i>
<i>Psathyrella pseudolimicola</i>	Bonner, Idaho, Valley	on soil
<i>Psathyrella psilocyboides</i>	Adams	on soil in wet mountain meadows
<i>Psathyrella roothaanensis</i>	Boundary	on moss in swampy area
<i>Psathyrella rufogrisea</i> var. <i>bonnerensis</i>	Bonner	on sticks along stream
<i>Psathyrella rufogrisea</i> var. <i>riparia</i>	Valley	on wet soil along stream
<i>Psathyrella salictaria</i>	Idaho	on moss under <i>Salix</i> and <i>Betula</i>
<i>Psathyrella sublongipes</i>	Idaho	under <i>Betula</i>
<i>Psathyrella subnuda</i> var. <i>velosa</i>	Bonner	on humus under <i>Populus</i>
<i>Psathyrella subradicata</i>	Owyhee	on burned soil
<i>Psathyrella variata</i>	Bonner	on <i>Populus</i> log
<i>Psathyrella vesiculocystis</i>	Idaho	on conifer debris
<i>Psathyrella wapinitaensis</i>	Bonner, Idaho, Valley	on conifer logs
<i>Psathyrella warrenensis</i>	Idaho	on grassy soil
<i>Rhizopogon abietis</i>	Custer, Idaho, Valley	<i>Picea engelmannii</i> , <i>Pinus</i> and <i>Abies</i> spp.
<i>Rhizopogon albidus</i>	Valley, Idaho	<i>Pinus albicaulis</i> or <i>Abies</i> spp.
<i>Rhizopogon albiroseus</i>	Bonner	<i>Abies lasiocarpa</i>
<i>Rhizopogon alkalivirens</i>	Adams	<i>Pinaceae</i>
<i>Rhizopogon alpestris</i>	Valley	<i>Picea engelmannii</i> or <i>Abies</i> spp.
<i>Rhizopogon anomahus</i>	Boundary	<i>Pinus</i> or <i>Larix</i> spp.
<i>Rhizopogon arenicola</i>	Bonner	<i>Pinus contorta</i>
<i>Rhizopogon argillaceus</i>	Valley, Bonner	<i>Picea engelmannii</i>
<i>Rhizopogon avellaneitectus</i>	Bonner	<i>Pinus contorta</i>
<i>Rhizopogon brunneicolor</i>	Bonner, Idaho, Valley	<i>Pinaceae</i>
<i>Rhizopogon brunneifibrillosus</i>	Bonner	<i>Pinaceae</i>
<i>Rhizopogon butyraceus</i>	Idaho, Valley	<i>Pinaceae</i>
<i>Rhizopogon chamalelotinus</i>	Bonner	<i>Pinaceae</i>
<i>Rhizopogon cinerascens</i>	Bonner	<i>Pinaceae</i>
<i>Rhizopogon clavitisporus</i>	Valley	<i>Pinaceae</i>
<i>Rhizopogon colossus</i> var. <i>colossus</i>	Valley	<i>Pinaceae</i>
<i>Rhizopogon cylindrisporus</i>	Shoshone	<i>Pinaceae</i>
<i>Rhizopogon deceptivus</i>	Adams, Bonner, Idaho	<i>Pinaceae</i>
<i>Rhizopogon evadens</i> var. <i>subalpinus</i>	Idaho	<i>Pinus albicaulis</i>
<i>Rhizopogon fallax</i>	Idaho, Custer	<i>Pinus contorta</i>
<i>Rhizopogon flavofibrillosus</i>	Valley	<i>Pinus</i> spp., <i>Picea engelmannii</i> , <i>Abies lasiocarpa</i> , or <i>Pseudotsuga menziesii</i>
<i>Rhizopogon florencianus</i>	Idaho	<i>Abies</i> or <i>Picea engelmannii</i>
<i>Rhizopogon fragrans</i>	Valley, Idaho	<i>Pinaceae</i>
<i>Rhizopogon griseogleba</i>	Valley	<i>Picea engelmannii</i>
<i>Rhizopogon hysterangioides</i>	Valley	<i>Picea engelmannii</i> , <i>Abies lasiocarpa</i>
<i>Rhizopogon inquinatus</i>	Bonner	<i>Pseudotsuga menziesii</i> , <i>Tsuga heterophylla</i>
<i>Rhizopogon kauffmanii</i>	Idaho, Boundary	<i>Pinaceae</i>
<i>Rhizopogon laetiflavus</i>	Valley	<i>Abies</i> or <i>Pinus</i> spp.
<i>Rhizopogon luteoalboides</i>	Idaho	<i>Pinus albicaulis</i> , <i>Abies lasiocarpa</i> or <i>Picea engelmannii</i>
<i>Rhizopogon luteorubescens</i>	Bonner, Idaho, Valley	<i>Pinaceae</i>

<i>Rhizopogon lutescens</i>	Valley, Boise	<i>Pinaceae</i>
<i>Rhizopogon milleri</i>	Bonner	<i>Larix occidentalis</i> or <i>Pinus</i> spp.
<i>Rhizopogon molligleba</i>	Idaho	<i>Pinus albicaulis</i> or <i>Abies</i> spp.
<i>Rhizopogon obscurus</i>	Adams, Valley	<i>Pinus contorta</i>
<i>Rhizopogon ochraceisporus</i>	Boise, Idaho, Valley	<i>Pseudotsuga menziesii</i> , <i>Abies</i> spp.
<i>Rhizopogon ochraceobrunnescens</i>	Bonner, Idaho	<i>Pinaceae</i>
<i>Rhizopogon ochroleucus</i>	Valley, Idaho	<i>Pinaceae</i>
<i>Rhizopogon olivaceoluteus</i>	Bonner, Idaho	<i>Abies</i> spp.
<i>Rhizopogon parvulus</i>	Valley, Bonner	<i>Abies</i> and <i>Larix</i> spp.
<i>Rhizopogon pseudoaffinis</i>	Valley	<i>Abies</i> spp. or <i>Picea engelmannii</i>
<i>Rhizopogon pseudoalbus</i>	Valley	<i>Abies</i> spp. or <i>Picea engelmannii</i>
<i>Rhizopogon quercicola</i>	Bonner	<i>Pinaceae</i>
<i>Rhizopogon rogersii</i>	Bonner	<i>Pinaceae</i>
<i>Rhizopogon rubescens</i> var.		
<i>pallidimaculatus</i>	Valley	<i>Abies</i> spp. or <i>Pinus</i> spp.
<i>Rhizopogon rufus</i>	Bonner	<i>Pseudotsuga menziesii</i>
<i>Rhizopogon semireticulatus</i>	Latah	<i>Pinus ponderosa</i> or <i>Abies grandis</i>
<i>Rhizopogon semitectus</i>	Bonner, Boundary	<i>Abies lasiocarpa</i> or <i>Tsuga mertensiana</i>
<i>Rhizopogon sordidus</i>	Boundary	<i>Pinus ponderosa</i>
<i>Rhizopogon subbadius</i>	Custer	<i>Pinus contorta</i>
<i>Rhizopogon subcaerulescens</i> var.		
<i>viridescens</i>	Bonner	<i>Tsuga</i> spp.
<i>Rhizopogon subcinnamomeus</i>	Bonner	<i>Pinus contorta</i> or <i>Pseudotsuga menziesii</i>
<i>Rhizopogon subclavitisporus</i>	Bonner	<i>Pseudotsuga menziesii</i>
<i>Rhizopogon subcroceus</i>	Adams, Boise, Custer, Valley	<i>Pinus</i> spp.
<i>Rhizopogon subgelatinosus</i>	Bonner, Valley	<i>Pinus</i> spp. or <i>Pseudotsuga menziesii</i>
<i>Rhizopogon sublateralis</i>	Bonner, Valley	<i>Pinus ponderosa</i> or <i>Abies magnifica</i>
<i>Rhizopogon subolivascens</i>	Valley	<i>Pinaceae</i>
<i>Rhizopogon subpurpureus</i>	Custer, Idaho	<i>Pinus contorta</i> , <i>Tsuga mertensiana</i> , and <i>Abies lasiocarpa</i>
<i>Rhizopogon subsalmonius</i> var.		
<i>griseolilascens</i>	Bonner	<i>Abies lasiocarpa</i>
<i>Rhizopogon subsalmonius</i> var.		
<i>roseitinctus</i>	Idaho	<i>Pinus albicaulis</i> or <i>Abies lasiocarpa</i>
<i>Rhizopogon subsalmonius</i> var.		
<i>similis</i>	Bonner, Idaho	<i>Picea engelmannii</i> or <i>Abies lasiocarpa</i>
<i>Rhizopogon udus</i>	Bonner, Idaho, Valley	<i>Picea engelmannii</i> or <i>Pinus contorta</i>
<i>Rhizopogon umbrinoviolascent</i>	Idaho	<i>Larix occidentalis</i> or <i>Pseudotsuga menziesii</i>
<i>Rhizopogon variabilisporus</i>	Idaho	<i>Picea engelmannii</i> or <i>Abies</i>
<i>Rhizopogon vesiculosus</i>	Idaho	<i>Pinus contorta</i>
<i>Rhizopogon villescens</i>	Bonner	<i>Pseudotsuga menziesii</i> or <i>Abies</i> or both
<i>Rhizopogon zelleri</i>	Valley, Adams	<i>Pseudotsuga menziesii</i>
<i>Rhodocypa ovilla</i>	Boundary	on soil under fern
<i>Sowerbyella imperialis</i>	Boundary	saprophytic
<i>Sowerbyella rhenana</i>	Boundary	saprophytic
<i>Truncocolumella citrina</i> var.		
<i>separabilis</i>	Valley	<i>Pseudotsuga menziesii</i>
<i>Wynnella silvicola</i>	Custer, Idaho	on moss near riparian areas